Meeting Summary

eHealth Technical Working Group
December 22, 2009 11:00AM-12:30PM

Please refer to the meeting slides for additional information.

The first portion of the meeting was spent revisiting a few important meaningful use areas, described below.

E-Prescribing (Slide 3):
Walter apprised the group of an upcoming phone call with SureScripts to discuss their plans for increasing coverage and addressing technical deficiencies in their network. Depending on what is learned, it may be necessary to look at alternative solutions for e-prescribing that do not involve SureScripts. The group was asked whether there was any knowledge of initiatives or mechanisms to reach pharmacies that are not in the SureScripts network. Dave Minch mentioned an initiative by CAL eRx to recruit local pharmacies to sign up. Walter responded that he had spoken with them and gotten a fair amount of background information as well as discussion around advantages and challenges of working with SureScripts.

Dave pointed out that the only alternative to SureScripts right now is to go directly to the independent pharmacies, but implementing e-prescribing from the pharmacy's point-of-view is a lot of work for very little return. Walter added that a key part of the equation would be to appropriately incentivize the pharmacies as part of a state initiative. It is unclear whether a shared service could significantly reduce the amount of effort required for a pharmacy to get plugged into the network. Essentially, there are concerns on the part of small pharmacies about costs and fees associated with e-prescribing as well as the amount of effort it would take to adopt e-prescribing. Dave Minch stated that the situation was very similar to the problem that small physician practices face with respect to EHR adoption.

Tim Andrews brought up the issue of how to support hospital pharmacies. For instance, Kaiser is not part of SureScripts. Dave Minch pointed out that Kaiser does not fill outside prescriptions, although it can transmit e-prescriptions to outside pharmacies if needed. Walter stated that the question would need to be asked of whether and how to support e-prescribing in certain situations that involve pharmacies not part of the retail model but are rather part of an IDN or hospital.

Clinical Summary Sharing (Slide 4):
Clinical summary sharing involves the sharing of key clinical information (e.g., discharge summaries, referrals, etc.) between two arbitrary entities. Two key parts of this transaction involves connectivity (such as directory services and transport standards or translations) and "payload" standards (which may be determined by EHR vendors, meaningful use criteria, and/or CCHIT certification criteria). A third component involves issues of consent and access control in the pull model.

Other Meaningful Use Cases (Slide 5):

The HIE challenges for the other meaningful use goals were briefly reviewed.

- Population Health – two challenges are sufficient data coding and aggregation of patient data across care settings.
- Immunization Registries – three challenges are patient identity matching, authentication of authorized users, and sufficient data coding.
- Patient-Centered Care – a main challenge is patient authentication.
- Public Health Reporting – two challenges are sufficient data coding and authentication of data submitters.
- Quality Reporting – two challenges are data abstraction and coding from EHR and authentication of data submitters.
- Administrative Simplification – two challenges are patient identity matching for eligibility checking, and claims submission (which in general is available through clearinghouse functions)

Looking at these as a group, the above meaningful use goals share common HIE challenges, including sufficient data coding, patient identity matching, and authentication of users for secure data submission.

Core Services (Slide 6):

From this analysis, the following shared services were proposed as fundamental to HIE across arbitrary entities:

- Directory services – provisioning of all data trading partners and repositories of electronic addresses
- Authentication services – centralized trusted process for authentication of data trading partners. The rationale for this as a shared service is that an arbitrary entity receiving information from another arbitrary entity in the state will typically not have access to the entire data trading partner directory and will not likely be able to perform authentication itself. Also, an entity may be unwilling to accept authentication from a third party unless it is highly trusted.
- Identity reconciliation – universal patient ID (probably not feasible), health plan ID, improved demographics matching.
- Practical data coding standards

Discussion on Challenges of Identity Reconciliation:

Eileen Moscaritolo asked whether a master patient index would solve the identity reconciliation issue. Walter indicated that one approach would be to state that there would be a single master patient index for all patients in California. Anthony Stever drew a distinction between a patient identifier and a patient index. The index is the functionality that correlates demographics or other attributes with an actual person, while the patient identifier would be a mandated unique identification, e.g. social security number. Dave Minch replied that a single statewide MPI could not be a realistic possibility unless the federal government was willing to change its laws; the VA and the Military Health System are currently disallowed by law from sharing patient identities with a master patient index. Additionally, other large IDNs such as Kaiser have developed their gateways and processes according to national standards of

interoperability and thus have no incentive to place their information in another identity repository. As a result, the current point of discussion is how to come up with the best method for identity reconciliation that incorporates multiple MPIs. Dave Handren completely agreed with this assessment.

Rim Cothren reported that the federal government's strategy does not include plans for an MPI at the national level. Instead, the favored approach is the use of an arbitrated mechanism for reconciling patient identities. This approach utilizes a service for identifying shared identities among organizations that is handled through an arbitration process called XCPD, rather than any single database. There is a middle ground that is supported through the IHE profile for PIX PDQ (Patient Identifier Cross-Reference and Patient Demographic Query), which involves a cross-reference manager that is a shared repository; however, there is not a lot of support for use of such an approach at the scale needed for the state of California, and it also carries some of the same issues that a statewide MPI would have. Rim agreed that the issues around participation of certain large organizations are real, and further characterized the barriers as being largely driven by organizational policy.

Dave Handren observed that it became clear early on at the NHIN specifications level that it is simply not going to be possible to identify patients across HIOs through the current probabilistic matching scenario, given the limited number of attributes that can be used to perform the match. Contact information is often unusable because patients move. Social Security Number is also unable to be used in many cases. A discrete mechanism is needed but currently does not exist.

Tim Andrews agreed with the assessments of the group, and indicated that New York came to similar conclusions about the difficulty of overcoming policy issues for multiple organizations. Even if the state could arrive at a solution, there would be problems around state borders and at the national level as well. At this point, there do not appear to be any clear solutions. On the other hand, there is wide recognition of the importance of having some sort of deterministic and universal identification.

Dave Handren remarked that the situation in California is probably even worse than in New York, given that the Social Security Number often cannot be used for identification. He also mentioned that at the NHIN level, specifications were created to allow for the use of a VUHID (Voluntary Universal Healthcare Identifier), but it became clear that this would not work either. Tim pointed out that suboptimal, manually intensive methods of adjudicating identities and correcting errors exist, although using such an approach for the state of California would require significant human resources and would be expensive to implement and maintain.

Discussion on Policy Solutions to Identity Reconciliation:

From the discussion, Walter surmised that it did not seem apparent what kind of state-level service or resource could realistically be provided to address the problem. He then inquired whether policy could play a role, e.g. requiring a minimum of specified patient identifying information to be transmitted with any patient-level transaction over the statewide HIE infrastructure. Dave Handren suggested that the attributes needed for a probabilistic match include last name, first name, and date of birth, as well as a fourth attribute. Within an HIO, this last attribute would be a combination of medical record number

and facility ID, but outside the HIO what this attribute should be is less clear. Walter suggested the possibility of using a patient's health plan ID. The disadvantages of this identifier are that they are sometimes reused and may be assigned to an entire family as opposed to an individual, but the advantage is that it is carried across settings of care and across organizations.

Dave Minch suggested that surveying the HIOs to determine what attributes they use to perform disambiguation would help to inform the setting of state-level patient identity standards for HIE. Dave Handren shared from his experience that if the social security number is not available, matching is attempted using demographic information. The problem is that the need for matching records across HIOs often comes after a patient has moved; however, current address will not match records with an old address, which renders matching based on address relatively useless. Dave strongly recommended that the Social Security Number be required in the state of California. Others in the group responded that this would be difficult given existing laws that prohibit such use.

Walter summarized that one approach to the problem of identity reconciliation would be to specify at the policy level a minimum set of patient demographic information, perhaps including a local MRN, that must be provided as part of any transaction involving the statewide HIE infrastructure.

<u>California Environment for HIE: Terminology (Slide 7):</u>
Walter then turned to a discussion of the environment for health information exchange in California. Some relevant terminology was defined (Slide 7), including:

- C*ommunicant* – a person, organization or information system that is the original sender of ultimate recipient of an exchange of health information.
- *Enterprise* – a discrete business entity that controls in top-down fashion the selection, purchase, and management of HIT resources and their interoperability.
- *HIO* – an organization that oversees and governs certain exchanges of health-related information among certain enterprises in a certain region or jurisdiction.

Dave Minch asked whether it was necessary to define *communicant* as a new term, as opposed to using a well-established term such as *actor*. Walter acknowledged that this may be a good suggestion, explaining however that he wanted to draw the distinction between *communicant* and *enterprise*. Walter also explained that a communicant may be an enterprise (e.g., solo practitioner), or it may be part of an enterprise (e.g., an ED in a hospital). Also, an HIO does not necessarily govern all exchanges of health information within a region or jurisdiction.

<u>Diagrammatic Representation of California Environment for HIE (Slide 8):</u>
Walter then depicted a graphical model of the California environment for HIE. While some communicants in the model are completely independent (such as small office practices or independent pharmacies), other communicants are part of enterprises (such as IDNs or pharmacy chains), and still other communicants are part of HIOs. Above all of these entities in the cloud is the statewide HIE infrastructure, which we are trying to define.

California Environment for HIE – E-Prescribing Example (Slide 9):

The state HIE infrastructure will need to support various communication paths of HIE activity, including the following examples:

1. Two communicants using the state HIE infrastructure to share information with one another, e.g. a small practice and an independent pharmacy.
2. A communicant and a communicant within an enterprise, e.g. a small practice and a store within a pharmacy chain. Here, the infrastructure supports communication between the independent communicant and the enterprise (red), while the enterprise directs the communication to the individual store level. Intra-enterprise communication (green) need not utilize the resources of the statewide HIE infrastructure.
3. A communicant within an enterprise within an HIO, and an enterprise. The HIE infrastructure supports communication between the HIO and the enterprise, while communication with the clinic itself is handled by the internal architecture of the IDN and HIO.
4. A slight variation of (3) involves the same parties, but this time the IDN bypasses the HIO and connects to the statewide infrastructure in order to communicate with the enterprise of interest. This scenario may occur if, for instance, the HIO does not support e-prescribing.
5. Another variation of same again involves the identical parties, with the clinic bypassing both the IDN and HIO to connect directly to the state HIE infrastructure in order to communicate with the enterprise of interest.

Discussion on Services to Support HIE Environment:

Dave Handren related his experience with exchanging HITSP C32 Summary Documents at the NHIN level. One of the challenges was that many participants were not storing detailed sender or recipient information even though such specification was available. Instead, only information on the exchange or exchange partner might be sent. Getting people to comply with best practices and include detailed sender and recipient information was difficult.

Walter suggested that an appropriate analogy for what was being envisioned could be found in Internet technologies. Both ultimate sender and recipient of Internet packets are known, yet those packets travel through a variety of other aggregating and communication entities (e.g., gateway services) along the way.

Walter then asked what core shared services would be required to support these communication paths. Rim Cothren asserted that one could identify certain required core services to support the desired flow of data. The clinic needs to be able to find Walgreens and perhaps even Store #1, so directory services with lookup functionality will be needed. An authentication service is needed so that the clinic and Walgreens can trust the parties that they are communicating with. A mechanism to encrypt the data (mostly protected health information) flowing between the communicants is needed. If the guidelines in the National Privacy and Security Framework that ONC introduced last year are to be followed, then the authorization for the clinic to send or request information will need to be established. Additionally, some transactions will require obtainment of patient consent. In Rim's view, the directory service to

find organizations, as well as an authentication service, are minimum requirements to accomplish the information exchange objectives.

Dave Handren asked whether the solution would involve a UDDI framework with a certificate authority within the state. Rim responded that UDDI is the NHIN solution for providing directory services, along with the root CA for identifying organizations on both ends and setting up encryption.

Entity-to-Entity Relationships, Data Exchange, and the State HIE Infrastructure

Tim Andrews noted that the diagram seemed to suggest that the state HIE infrastructure would be a necessary intermediary in establishing data exchange between two parties. He asked whether it would be possible in this model to have two communicants directly connected without the use of the infrastructure, for example a clinic connecting to a pharmacy via an EHR that supports e-prescribing via SureScripts. Walter clarified that the assumption was that SureScripts would be the state-designated infrastructural component for e-prescribing.

Rim suggested that there could be a direct connection between two communicants if they had a pre-existing business relationship. However, shared services are mechanisms put in place between organizations that want to exchange data but do not have a business relationship. Thus, both the clinic and the pharmacy can have a business relationship with the state HIE infrastructure, which provides shared services to allow data exchange between the two entities. Also, there is probably more than one kind of business relationship that entities can have.

Walter responded that two entities can have a business relationship and use shared services or infrastructural resources in order to communicate, similarly to how the Internet might be used for such a purpose. The infrastructure is not a proxy of a business relationship, but an enabler of the communication. Walter was also cautious about characterizing an entity's relationship with the state as a "business relationship." The relationship may be more akin to the relationship that a website owner has with domain name services or with a vendor that provides gateway services.

Discussion on Data Integration Services:

Tim Andrews brought up the issue of integration services. Medication history, for instance, is offered by Surescripts based on data from retail pharmacies and PBMs. However, medication history also comes from other sources, such as ADTs and discharge notices. Providers would like to have a full medication history for reconciliation, and ideally would like the medication list to be reconciled for them. The decision to make SureScripts the state's infrastructural solution for e-prescribing has important architectural implications. Any reconciliation service would then need to reside with the EHR because this is the only place that potentially has all the information. Thus, the implicit architectural decision being made is that all integration will be done at the information endpoint, which means that every EHR needs its own solution for integrating these various forms of data. Tim asked whether this would be desirable, since that places a significant dependency on vendor applications at the point of care to perform integration of data and services.

Rim agreed that this is an important decision to be made. On one hand, being able to consolidate and de-duplicate data has real business value. On the other hand, it adds a level of complexity. There is a tradeoff involving business value and cost. Walter offered that perhaps there is a distinction between core services and other services. Is such a service something that should be provided by the state, or is it something that could be offered by third parties? Rim replied that the answer to this has implications for how the state HIE infrastructure will be sustained long term. Will value-added services like this be offered by the state as part of its sustainability model, or will they be offered by third parties, in which case the state HIE infrastructure will be sustained in some other way? Rim asked whether there was another organization addressing such issues with which the group could coordinate. Walter confirmed that there is a Finance Committee that is a peer to the TAC, and that communication with the Finance Committee will be needed to determine if and how the technical architecture that the group designs can be sustained.

Example of Clnical Summary Sharing (Slide 10):

Another example is the sharing of a hospital discharge summary. The following information flows were described:

1. Independent hospital sending summary to independent practice, using the state HIE infrastructure to communicate
2. Hospital in an IDN sending summary to independent practice, using the HIT infrastructure of the IDN which then communicates through the state HIE infrastructure to the practice not in the IDN.
3. Alternatively, communication can occur between a hospital and a clinic in the same IDN, in which case the state HIE infrastructure would not be accessed.
4. A hospital in a hospital chain, which is a member of an HIO, communicates with a practice belonging to another IDN that is not a member of the HIO. Here, data flows through the internal infrastructure of the hospital chain up to the HIO, which then connects to the recipient IDN through the state HIE infrastructure. The recipient IDN sends the information to the appropriate clinic communicant through its own system.
5. Similar to (4) above, except the recipient practice is a participant of the HIO. In this case, the state HIE infrastructure would not be needed, and information can flow from the hospital through the hospital chain's HIT resources and then through the HIO.
6. Similar to (5) above, except the hospital bypasses the hospital chain and communicates with the practice using HIO services.
7. A hospital in one HIO communicates with a practice in a second HIO using the state HIE infrastructure.
8. Similar to (7), except the hospital's HIO communicates directly with the practice using the state HIE infrastructure.

As illustrated, there are many different paths of information flow, which ideally should all be allowed/supported.

HIE Core Services (Slide 11):

Based on the presented model, Walter introduced several straw HIE core services for consideration.

1. Registry (Slide 12). This would contain all communicants in the state who are reachable via the state HIE infrastructure, allow lookup of HIE communicants, be maintained by certified vendors, and exist as a highly secure resource accessible only by other registered communicants. For each communicant, the registry would contain a unique ID, name, mailing address, and relevant professional information.
2. Authentication (Slide 13). User authentication would be handled by a group of certified services called by applications for various HIE push and pull operations. The services would generate and return an authentication assertion for presentation to other communicants or services. Services may include support for different levels (strength) of authentication, depending on what is required by data trading partners. The level of authentication would be indicated in the assertion.
3. Routing (Slide 14). This service would determine the destination network address of an HIE transaction based on rules specified by communicant and transaction-type. Enterprise or HIO addresses with a communicant ID can be used for communicants that are part of these larger entities, in which case the enterprise/HIO is responsible for proper routing to the communicant. Independent communicants can specify their own network address.
4. Data standards (Slide 15). These would define the payload of the transaction, be specified by transaction type, and be required for certain transactions.
5. Rules (Slide 16). Every communicant reachable via the state HIE must have both a registry and routing entry. A communicant's ability/willingness to engage in a specific transaction via the state HIE infrastructure should be independent of ability/willingness to engage in other types of transactions.

Discussion on Authorization and Trust:

Walter asked the group whether a shared service for access control rules would also be necessary if there is a registry that holds the identities of communicants, or if access control could be determined by the communicant. Rim believed that it would be completely reasonable for authorization to be part of the transaction, such that an organization making a request asserts the authority associated with that request without the need for a shared service. This is reflective of the NHIN approach, where an assertion is made about the role of the requestor and the purpose of the request (e.g., a physician for the purpose of providing care to the patient, or an administrator for the purpose of documenting a claim). Walter observed that this would require standardizing roles and purposes. Rim indicated that HL7 contains such standards, and NHIN has determined certain codes that will be part of the NHIN specifications.

Tim Andrews noted that what NHIN has specified is a protocol and payload for expressing authorization and consent. For the statewide HIE infrastructure, it will be necessary to have at least a protocol for authorization and consent (as well as audit), but it may not be necessary to instantiate an actual service to be used by communicants. An alternative would be to handle this locally. In this case, trust relationships would need to be established amongst data trading partners, so that if one partner makes

an assertion in the proper document, protocol, and payload, it will be trusted by the other partner. Walter indicated that he had some concerns about a distributed trust infrastructure because of previous experience with information exchange efforts foundering as a result of such an approach. Even in organizations within the same community, difficulties arose in negotiating all of the pairwise arrangements detailing each party's responsibilities, legal liabilities, and legal remedies. As a result, he had come to believe that it would be advantageous to centralize trust if possible. For example, an entity will need to be able to trust a SAML assertion that someone has verified that an arbitrary data requestor has obtained consent. Tim Andrews agreed that this was a good point, and that there are tradeoffs with both approaches. Centralized services require a fair amount of infrastructure as well as cooperation on mandate. On the other hand, NHIN is taking the distributed approach, and they are experiencing difficulty because of the very issues that were raised.

Next Steps:

- Participants were asked to provide additional feedback and suggestions through the TWG discussion list.
- The next meeting is scheduled for 12/30 11:00AM - 12:30PM.

Summary of Key Questions/Issues/Decision Points:

- There does not appear to be a clear service or technical solution that will lower the barriers among small, independent pharmacies to adopt e-prescribing. Part of the solution may involve incenting the pharmacies to do so.
- Should the state HIE infrastructure provide support for e-prescribing outside of the retail pharmacy model, i.e. pharmacies that are part of an IDN or hospital? If so, how?
- A single statewide MPI is not a viable solution. One approach to identity reconciliation may be to specify at the policy level a minimum set of patient demographic information/attributes that must be provided as part of any transaction involving the statewide HIE infrastructure.
- What is the role of "data integration services"? Should these be part of the state infrastructure? Would supporting such services be helpful in sustaining the infrastructure long-term? What is the cost vs. benefit of such services?
- Should communicant authorization be handled through a centralized model or a distributed model?

Members Present

Name	Organization
Jane Brown	Nautilus Healthcare Management Group
Scott Cebula	Independent
Scott Christman	CA Dept. of Public Health
Paul Collins	CA Dept. of Public Health
Robert("Rim") Cothren	Cognosante, Inc.
Jeff Evoy	Sharp Community Medical Group
Dave Handren	Long Beach Network for Health
Daniel Haun	Adventist
Dave Minch	John Muir Health System
Eileen Moscaritolo	CalOptima
Steve Saunders	LA County Dept. of Health Services
Anthony Stever	AWS Consulting / Redwood MedNet
Jim Thornton	MemorialCare
Kris Young	CA Office of Health Information Integrity

Staff Present

Name
Walter Sujansky
Tim Andrews
Peter Hung